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## BOOKS RECEIVED.

A PHYSICAL TREATISE ON ELECTRICITY AND MAGNETISM. By J. E. H. Gordon, B. A., Camb., Assistant Secretary of the British Association. In two volumes. [London: Sampson Low, Marston, Searle and Rivington. 1880.

One of our correspondents calls attention to what he considers a breach of privilege on the part of a publishing house, which affixes the date 1880 to a scientific textbook which does not mention the telephone or motor-graph. If this omission be a sin it is simply a sin of omission; but quite different is it in the case of Mr. J. E. H. Gordon, an English compiler of a work on electricity and magnetism, in two volumes, which has come to us, with a flourish of trumpets, across the Atlantic. This book, which gives many pages (we will not say, however, too many, as the subject is an interesting one) to De La Rue's beautiful experiments, and eighteen pages to Mr. Crook's etherial and radiant speculations with Mr. Gimmingham's pretty tubes, only condescends to notice the Bell telephone in one brief page, and entirely ignores the existence of Edison's carbon telephone; although he recognizes the principle of the latter in Hughes' microphone, to which he gives great credit in another page. Aside from the unpardonable negligence evinced in this want of literary balance, which shows Mr. Gordon's incapacity as a book compiler, we here have a recurrence of an indignity unworthy of an Englishman. Mr. Gordon (who is an Assistant Secretary of the British Association) knows, or ought to know, that Mr. Preece exhibited an Edison musical telephone to the Association at their Plymouth meeting in 1877; and also that Edison's agent in London showed Mr. Hughes the carbon button and its properties in a telephone, three weeks before Mr. Hughes picked up the eliminated defects of the button as the principle of the microphone.

It does seem as if this ignoring the great services of the American Edison is but a part of a scientific conspiracy to falsify history. Where is the tasimeter, the most delicate electrical instrument for the measurement of radiant energy known to science? Where the motor-graph, that inexplicable wonder, which a telegraph company (more appreciative than Mr. Gordon) thought worth a hundred thousand dollars, the price they offered and paid for it? Where are their descriptions to be found in Mr. J. E. H. Gordon's Physical Treatise on Electricity and Magnetism? He does not deign to pen one line on the subject. This is either ignorance or folly; let Mr. Gordon accept which horn of the dilemma he thinks better.

However, considering the hasty manner in which the text of this book is thrown together, it can scarcely pass into currency, except as a beautifully illustrated catalogue of inventions and discoveries in which Mr. Gordon took no part. In this compilation (without reference, let it be distinctly understood, to the distinguished authors whose works are woven in without decent order or proportion), Mr. Edison shines by his absence.

The book cannot yet be purchased here, as the American buyers of the copyright are keeping it for the fall trade. We regret their connection with it, for what popularity can be expected, in this country, for a work on electricity that ignores the existence of Henry, Morse and Edison?

MANUAL OF HYDRAULIC MINING FOR THE USE OF THE PRACTICAL MINER. By T. F. Van Wagenen, E. M., New York, D. Van Nostrand, 1880.

Of all the problems presented to the mining engineer, there is none more important, nor simpler, than that contained in the subject of hydraulic mining of gold. It is only necessary to be sure of the premises and the results

may be considered certain. There are, really, but two questions involved, water to move the soil, and place to put it in. If these conditions are fulfilled, it is not difficult to predict success to those who have but fair promise of paying ground. Once we know where is the dumping ground, how high the fall, and what the grade at command for sluicing boxes, all that has to be done is to bring water to the highest point above the workings; which, of course, presupposes it has been lead from the source to the place of fall on the least grade consistent with a sure and economical supply.

Much of the brain and sinew of the working classes in the far West has taken to this class of mining, as offering the most enduring profit and employment; but hydraulic mining requires something else besides mere will and muscle. For its successful application a certain knowledge of figures, rather than of mineralogy, is requisite. These hardy men do not always possess such knowledge, and for their instruction, Mr. Van Wagenen has written a little manual which will be read, studied and understood by many a practical miner.

The book can serve as a model for writers who have something valuable to say, and who wish to speak to men who have no desire to waste time in hunting for the truth.

## PHYSICAL NOTES.

THE new electro-dynamic law of Clausius is receiving the deepest attention from the first electricians and mathematicians of Europe. The fundamental character of all his work and the acknowledged preëminence of his views, immediately demand an early investigation at the hands of his compeers. Already have Lorberg, Delsaulx, Frölich and others submitted this law to rigid analysis.

This new law of Clausius was advanced by the distinguished author only after finding himself unable to reconcile the two laws of Weber and Rieman with that simplicity which overwhelmingly addresses itself to our reason; and because they seem too complicated to be used as explanatory of these molecular currents so felicitously employed by Ampère in his theory of magnetism. These laws of Rieman and Weber require us to believe in the existence of two equal and opposite currents as originating all electrical action. In another essential point, Clausius (*Annalen der Physik und Chemie* X., 4, p. 609), finds himself compelled to differ from Rieman and Weber. They assume a *relative* motion between the electrified particles. Rieman using the word in its ordinary acceptance, according to which the difference of the components of velocity of the two electrical particles is made to represent the components of velocity of the relative motion; and Weber referring the relative motion to the mutual advance and retreat of the particles. Clausius rejects this method, which would confine one in the consideration of the subject to relative motion, and treats of both individual motions of the particles in their action on each other.

In the same number of the *Annalen* is an article by Herr Budde, on the laws of Clausius, in which, as an adherent of the theory, he exposes the fallacy of Frölich's interpretation.

THE contrary effects of sunlight in relation to certain chemical compounds, is noted by T. P. Blunt (*Analyst*, 1880, 79-81), who finds that an oxalic acid solution exposed to the light is rapidly decomposed, which is not the case in the dark. If this observation of Mr. Blunt is substantiated the use of that valuable re-agent in stoichiometry, where it serves as a basis for standardizing, will have to be restricted. From the ease with which oxalic acid is dried and weighed, and its non-corrosive nature, it has been considered almost invaluable in the working laboratory.

Mr. Blunt, on the other hand, finds that ferrous iodide requires the light in order to prevent decomposition. Does not this anomalous action of light point to a mechanical association and dissociation of molecules, analogous to that separation of tangible bodies effected by sound, as seen in Chladni figures?